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THE NORTH CAROLINA

**AREA HEALTH EDUCATION CENTERS
PROGRAM**

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1977/78

**Progress Report
1977-1978**





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INTRODUCTION

Communities throughout North Carolina have, for many years, indicated their desire to have better access to physicians and all forms of health manpower. These communities have invested resources in campaigns to attract and retain physicians. Our university medical centers, our community hospitals, and our professional associations have stimulated a variety of programs to increase the supply and improve the distribution of physicians and other manpower. These efforts at the community and institutional level have received strong support from federal and state government as well as from private foundations.

One of the activities that in some way owes its origins to each of the above groups and institutions is the North Carolina Area Health Education Centers (AHEC) Program. The AHEC Program, a unique partnership between the university medical center and the community, has been designed to improve the practice environment for physicians and all other health care personnel throughout North Carolina.

In addition to the North Carolina AHEC Program there are now AHEC Programs involving about 26 states and about 25 percent of all medical schools in the nation.

The primary goal of the North Carolina AHEC Program is to improve the geographic distribution of well-trained health care personnel with an emphasis upon professionals and support personnel trained to meet the primary medical care needs of citizens in rural counties of the State.

The North Carolina AHEC Program is a voluntary effort to

1. provide medical, dental, public health, pharmacy, allied health and nursing students with educational opportunities throughout the state,
2. expand and enhance the regional capability to train nursing and allied health personnel to serve each area of the state,
3. expand the regional capability to train primary care residents, especially family practitioners, and

4. increase opportunities for continuing education and technical assistance for all health personnel.

There are a number of social, economic, and political reasons why physicians and other trained personnel have not located in rural and inner-city areas and why they have increasingly specialized in their training. Professional isolation in underserved communities is also one of the important factors contributing to these trends. The education of students, the training of residents, and the ready availability of continuing education in a defined geographic area are expected to attract new health personnel and retain those already in practice.

Under the leadership of the Dean and the faculty of the School of Medicine at the University of North Carolina at Chapel Hill, the AHEC Program has been developed in cooperation with the other health sciences schools at Chapel Hill (Dentistry, Nursing, Pharmacy, and Public Health), the Duke University Medical

Center, the Bowman Gray School of Medicine, and the East Carolina University Medical Center. Also included in this statewide partnership are community hospitals, other University campuses, community colleges and technical institutes, and practicing professionals throughout the State. The Program now includes nine regional centers, each of which is functioning to meet the objectives of the Program.

The Program is a logical extension of the mandate given by the General Assembly when it created a four year School of Medicine at the University of North Carolina at Chapel Hill with the charge (1) to train well qualified physicians and (2) to help meet the physician needs of the State. After graduating its first physicians in 1954, the School of Medicine concentrated its efforts for a decade on the building of an excellent hospital and an excellent scientifically oriented medical education program in Chapel Hill.

In the mid 1960's the School of Medicine began to develop affiliations with several community

hospitals. It benefited from funds provided by the Regional Medical Program and the Duke Endowment in this effort. In 1969, the North Carolina General Assembly provided additional funds and a five-year contract from the Department of Health, Education, and Welfare was received in 1972. These funds allowed for the initial development of three AHECs.

In 1974, the Board of Governors of the University of North Carolina proposed and the North Carolina General Assembly funded the expansion of these three AHECs and the development of six new centers to complete a statewide network. The 1974 appropriation included funds for the construction of educational facilities throughout the State in order to carry out the Program.

For each year since 1974 the North Carolina General Assembly has increased its funding of the AHEC Program consistent with the plan put forward by the Board of Governors in 1974. The federal government has also maintained its support, although in a decremental manner

consistent with plans announced 1977. Finally, the community hospitals of North Carolina have proportionately increased their financial support of “their” program. As of January, 1979, the North Carolina AHEC Program is funded approximately 78% from State revenues, 12% from Federal revenues, and 10% from community resources.

The first phase of the North Carolina AHEC Program was projected through June, 1980, to the General Assembly. This Report sets out the objectives, the accomplishments, and the early results in improved physician distribution that have been achieved by this extraordinary voluntary cooperative effort between many institutions in North Carolina and thousands of health professionals in an effort to overcome a complex social problem: making health care more accessible to citizens in each county through a better distribution of physicians and all other types of health manpower.

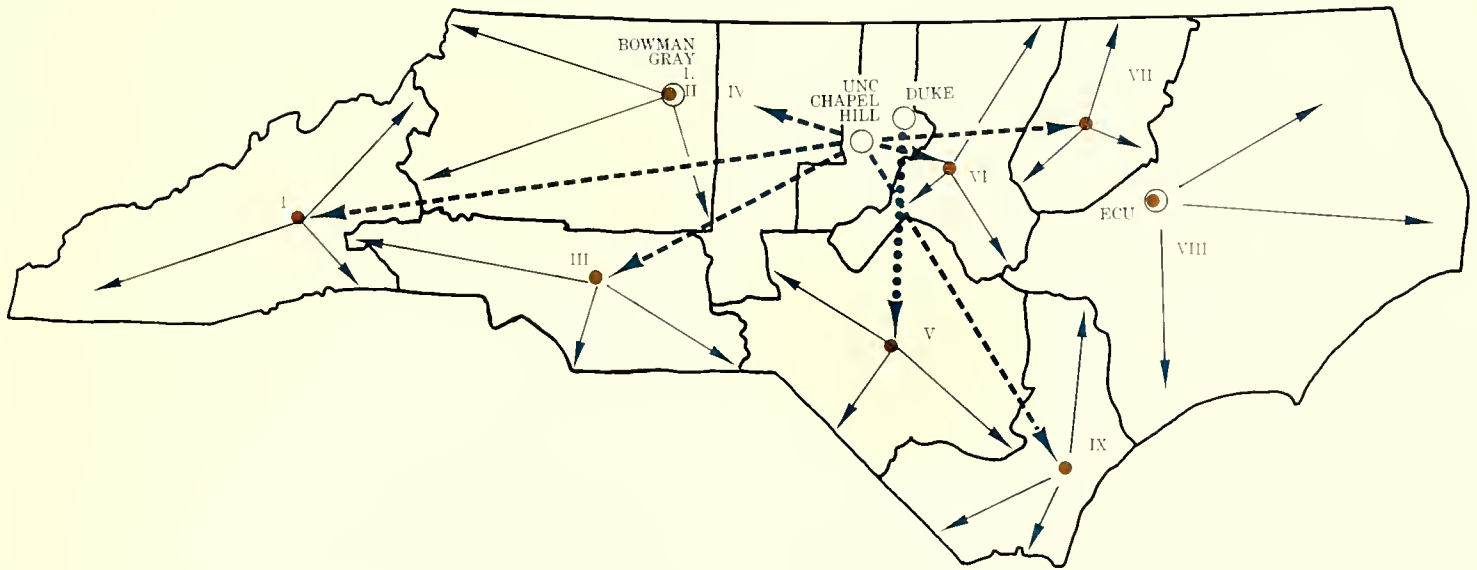
Eugene S. Mayer, M.D., Director
North Carolina AHEC Program

AHEC PROGRAM OBJECTIVES

The Area Health Education Centers (AHEC) Program was established in order

1. To increase the quantity, ensure the quality, and improve the geographic distribution of physicians and health personnel in all 100 counties of North Carolina.
2. To emphasize primary care through expanded undergraduate and graduate community based medical education.
3. To create nine educational centers throughout the state which would serve the educational needs of health personnel in their defined geographic areas.
4. To create a stimulating professional environment in all regions of the State.
5. To increase the quantity and improve the availability of continuing education for all health manpower throughout the State.

The North Carolina Area Health Education Centers Program



- I. Mountain AHEC
- II. Northwest AHEC
- III. Charlotte AHEC
- IV. Greensboro AHEC
- V. Fayetteville AHEC

- VI. Wake AHEC
- VII. Area L AHEC
- VIII. Eastern AHEC
- IX. Wilmington AHEC

IMPACT

The AHEC Program is only six years old and measurement of its full impact is still premature. Nevertheless, recent surveys of practicing physicians, residents, and medical students, as

well as several trends in the changing character of health manpower supply in North Carolina, suggest that the AHEC Program is having a significant impact.

Physicians

A 1978 AHEC survey of practicing physicians who had located their practice in North Carolina since 1976 revealed that among those physicians responding:

- The professional factors most important to North Carolina physicians in their location decisions were those in which the AHEC Program is active: the presence of clinical support services, high quality support personnel, regular contact with other physicians, and access to continuing education.
- Over 85% of the physicians who had been involved with the educational activities of the AHEC Program were satisfied with the general mission of the program, the quality of the educational experiences, and their experience teaching AHEC sponsored students and residents
- 45% said that AHEC was an important consideration in their practice location decision
- 65% have had some direct contact with the AHEC Program

Medical Students and Residents

The AHEC Program has had a significant effect on the attitudes and future career decisions of residents and medical students.

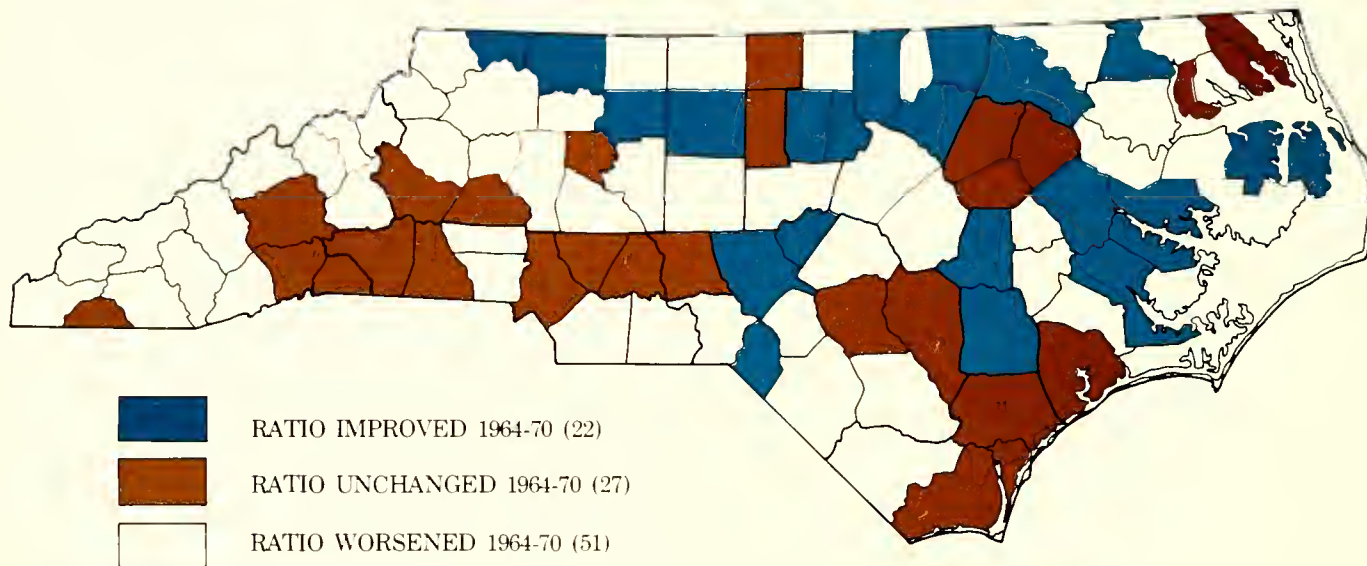
In response to a 1977 survey of North Carolina residents who were completing their training programs:

- Over three fourths of the residents based in AHEC hospitals said they planned to locate their practice in North Carolina
- 87% of the AHEC hospital residents said that their attitudes toward community based practice were favorably influenced by the residency experience

For a recent graduating class of the UNC-CH School of Medicine:

- 95% indicated that AHEC experiences had enhanced the quality of their education
- Over three-fourths said that as a result of their off-campus experiences through AHEC, they now had a more favorable attitude towards both primary care and community based practice
- More than two-thirds chose internships or residency programs in primary care specialties
- 70% indicated that they would eventually like to practice in North Carolina
- Nearly 60% of the graduates indicated a preference to locate their practice in small cities, towns and rural areas upon completion of their medical training.

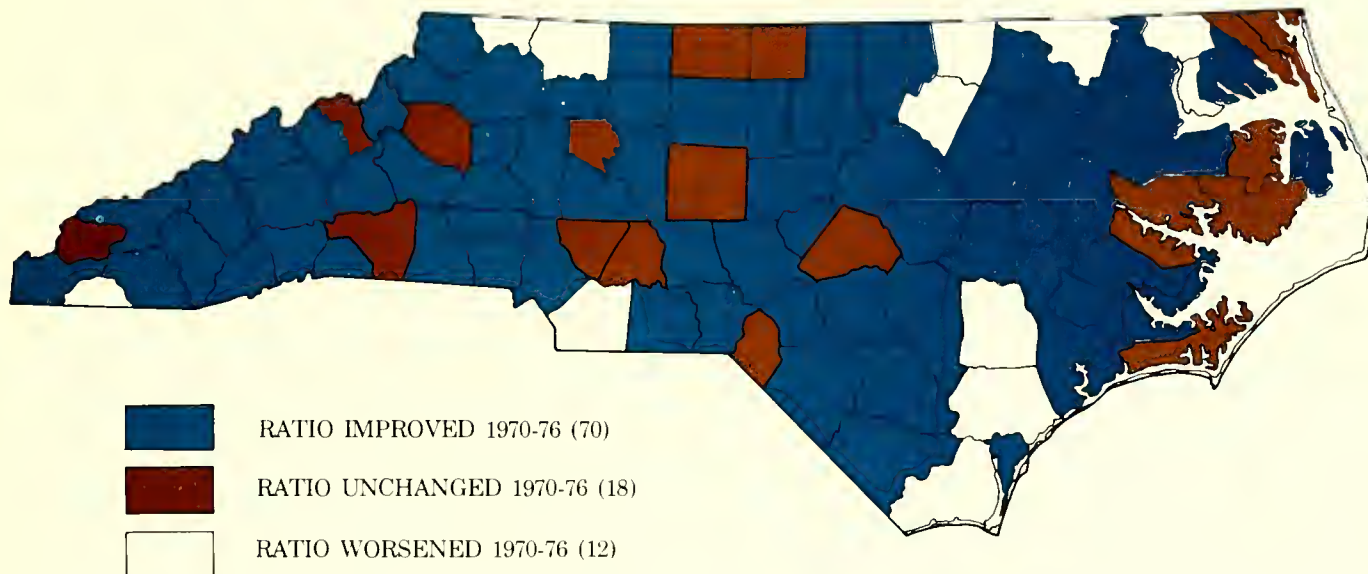
Change in Population / Physician Ratio by AHEC Region (1964-1970)



TOTAL ACTIVE NONFEDERAL PHYSICIANS
SOURCE: AMERICAN MEDICAL ASSOCIATION

During the period 1964-1970, 51 North Carolina counties experienced worsening population/physician ratios while only 22 showed improvement.

Change in Population/Physician Ratio by AHEC Region (1970-1976)



TOTAL ACTIVE NONFEDERAL PHYSICIANS
SOURCE: AMERICAN MEDICAL ASSOCIATION

During the period 1970-1976, the physician manpower situation in North Carolina showed significant improvement with 70 of the State's counties experiencing improving population/physician ratios, 18 remaining essentially unchanged, and only 12 having worsening ratios. Fifty-five of the counties with improved ratios during this period were *non-metropolitan*.

North Carolina has increased its supply of physicians over the past five years at a rate approximately 50% greater than the rest of the U.S.

North Carolina has improved its population/physician ratio during the same period at a rate approximately 43% greater than the rest of the U.S.

When only non-metropolitan counties are compared, the improvement in the population/physician ratio in North Carolina is approximately 36% greater than for the rest of the nation.

North Carolina's rural counties have shown continued improvement in their population/physician ratios during the 1970s after experiencing a seriously worsening situation during the 1960s relative to other rural counties in the U.S.

Population / Physician Ratios for Rural Counties in North Carolina and Sample of Other Rural U.S. Counties* (1963-1976)

RATIOS

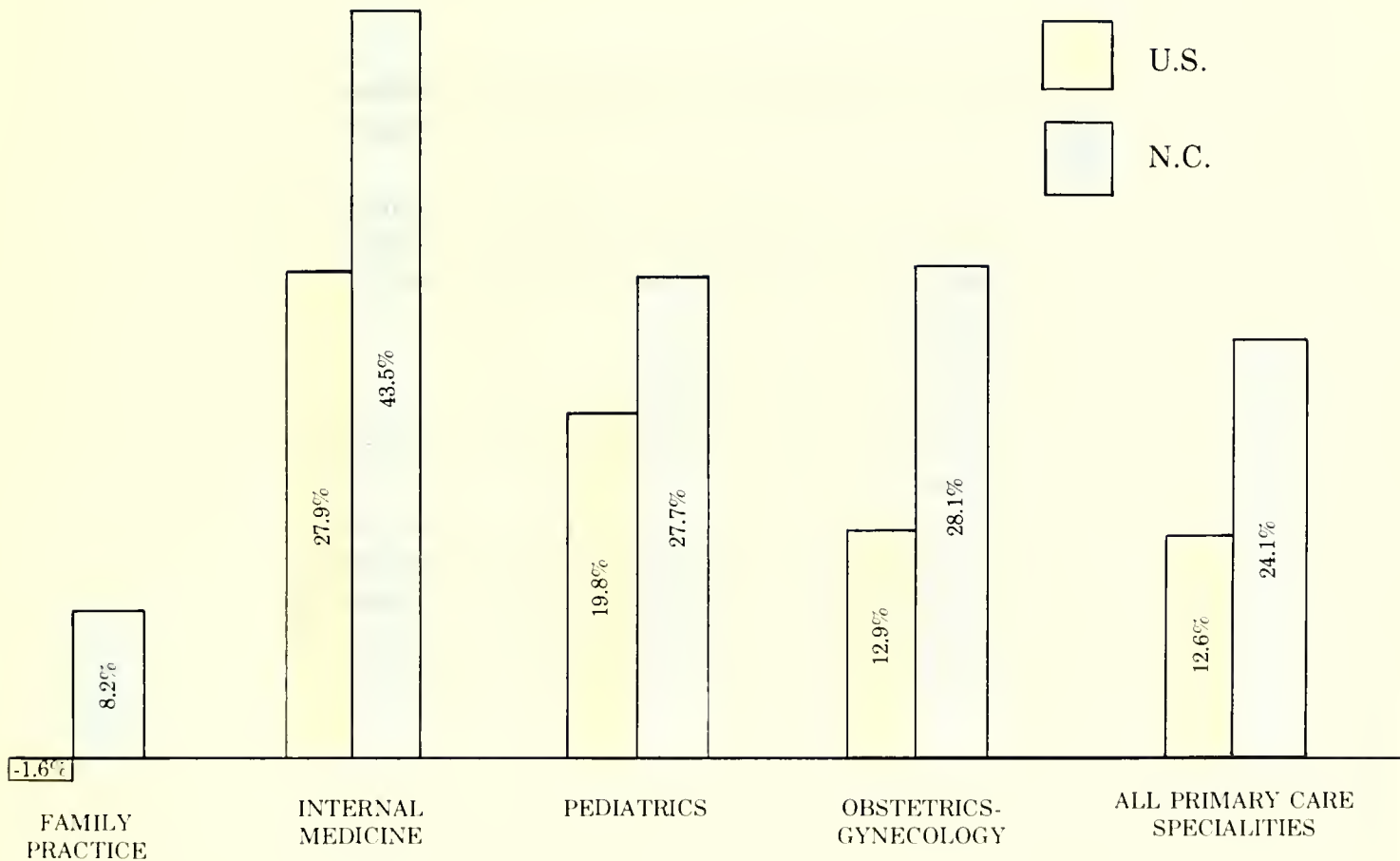


*39 Counties in N.C. and a random sample of 580 U.S. counties with a population less than 25,000 in 1970.

The growth in primary care physicians in North Carolina during the period 1971 to 1976 was double that for the United States as a whole.

The improvement in the State's ratio of population to primary care physicians was also approximately twice that for the rest of the United States.

Changes in the Number of Active Primary Care Physicians, 1971-1976: United States and North Carolina



HEALTH SCIENCES EDUCATION

AHECs have expanded the undergraduate and graduate opportunities for community based health science education for the

1. University of North Carolina at Chapel Hill, in its Schools of Medicine (including the Department of Medical Allied Health), Nursing, Public Health, Dentistry, and Pharmacy;
2. Duke University Medical Center;
3. Bowman Gray School of Medicine; and
4. East Carolina University Schools of Medicine, Nursing, and Allied Health.

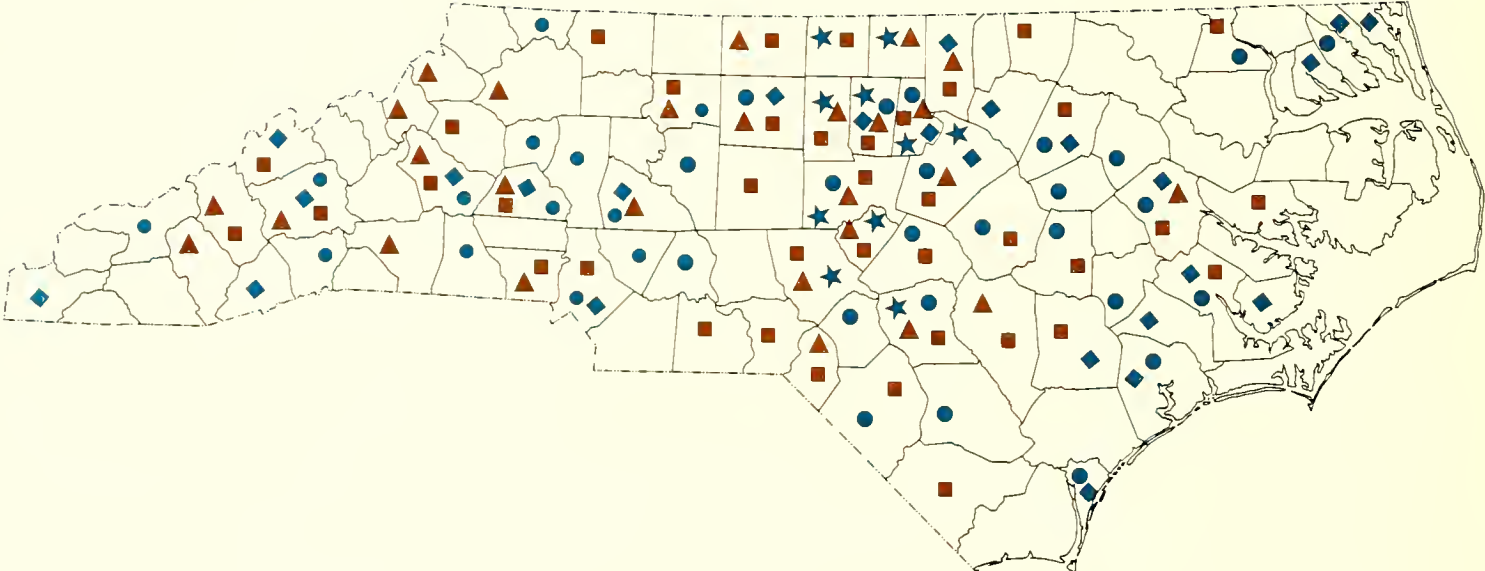
In addition, during 1977-1978, all AHECs provided nursing education (1875 student months) and allied health education (1023.4 student months) for students from private colleges, other campuses of the University of North Carolina system, community colleges and technical institutes in the AHEC regions.

Health Sciences Education in AHECs
July 1, 1977 - June 30, 1978

| | Number of Student Months* |
|---------------|------------------------------|
| Allied Health | 1970.9 |
| Dentistry | 184.5 |
| Medicine | 945.9 |
| Nursing | 2866.1 |
| Pharmacy | 641.1 |
| Public Health | 132.0 |
| TOTAL | <u>6740.5</u> |

*1 Student Month = 20 instructional-days

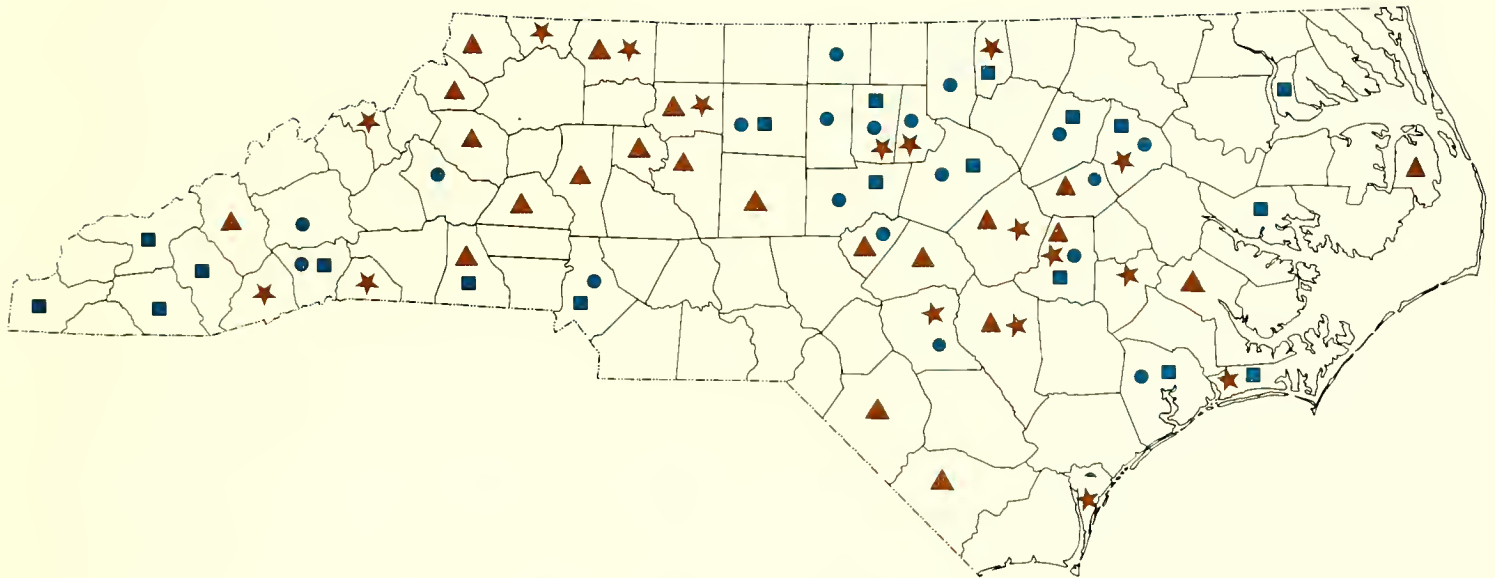
Training Sites for Students in Nursing, Dentistry, Public Health, Pharmacy, and Allied Health



- ★ Nursing
- Pharmacy
- ◆ Dentistry

- Allied Health
- ▲ Public Health

Location of Regular Assignments of Medical Students from UNC-CH, Duke, and Bowman Gray



- UNC-CH: Family Practice Selective
- UNC-CH: Clinical Clerkships or Acting Internships

- ▲ Bowman Gray: Community Medicine
- ★ Duke: Community Medicine

AHEC Rotations of UNC/CH Medical Students 1977-1978

| Discipline | # Assigned Months per students | Total # Student Months Assigned | # Student Months on Rotation away from Chapel Hill | % Rotations Away from Chapel Hill |
|-----------------------------------|-----------------------------------|------------------------------------|--|---|
| Third Year (132 students) | | | | |
| Medicine | 3 | 396 | 138 | 35% |
| Pediatrics | 1.5 | 198 | 73.8 | 37% |
| OB-Gyn | 1.5 | 198 | 100.4 | 51% |
| Psychiatry | 1.5 | 198 | 90 | 45% |
| Surgery | 3 | 396 | 36 | 9% |
| Subtotal | 10.5 | 1386 | 438.2 | 32% |
| Fourth Year (128 students) | | | | |
| Family Medicine | 1 | 128 | 100.5 | 79% |
| Electives | 6 | 768 | 229.0 | 30% |
| Subtotal | 7. | 896 | 329.5 | 37% |
| <hr/> | | | | |
| TOTAL | 17.5 | 2282 | 767.7 | 34% |

AHEC-Based Clinical Training of Third and Fourth Year Medical Students From UNC-CH

| | 1971-72 | 1973-74 | 1975-76 | 1977-78 | 1979-80 (Projected) |
|--|---------|---------|---------|---------|------------------------|
| Total Number of Third and Fourth Year Students | 162 | 208 | 250 | 260 | 320 |
| Percent Clinical Training in AHEC | 4% | 11% | 21% | 34% | 34% |
| Number of Third and Fourth Year Students in AHECs at Any Given Time | 6 | 23 | 53 | 87 | 109 |
| Full-time Medical Faculty in AHECs | 16 | 24 | 52 | 68 | 80 |

RESIDENCY PROGRAMS

The AHEC Program is on schedule in developing 300 new primary care residency positions by 1980. Of these, about 180 will be in family practice with the remainder in general internal medicine, pediatrics, and obstetrics-gynecology. By 1980, family practice residency positions will constitute about 30% of all primary care residency positions in North Carolina, compared to only 8% in 1973-74.

New family practice residency programs have been established at the Mountain, Charlotte, Fayetteville, and Eastern AHECs. A general internal medicine residency has been established in the Wilmington AHEC. A Department of Family Medicine and a family practice residency

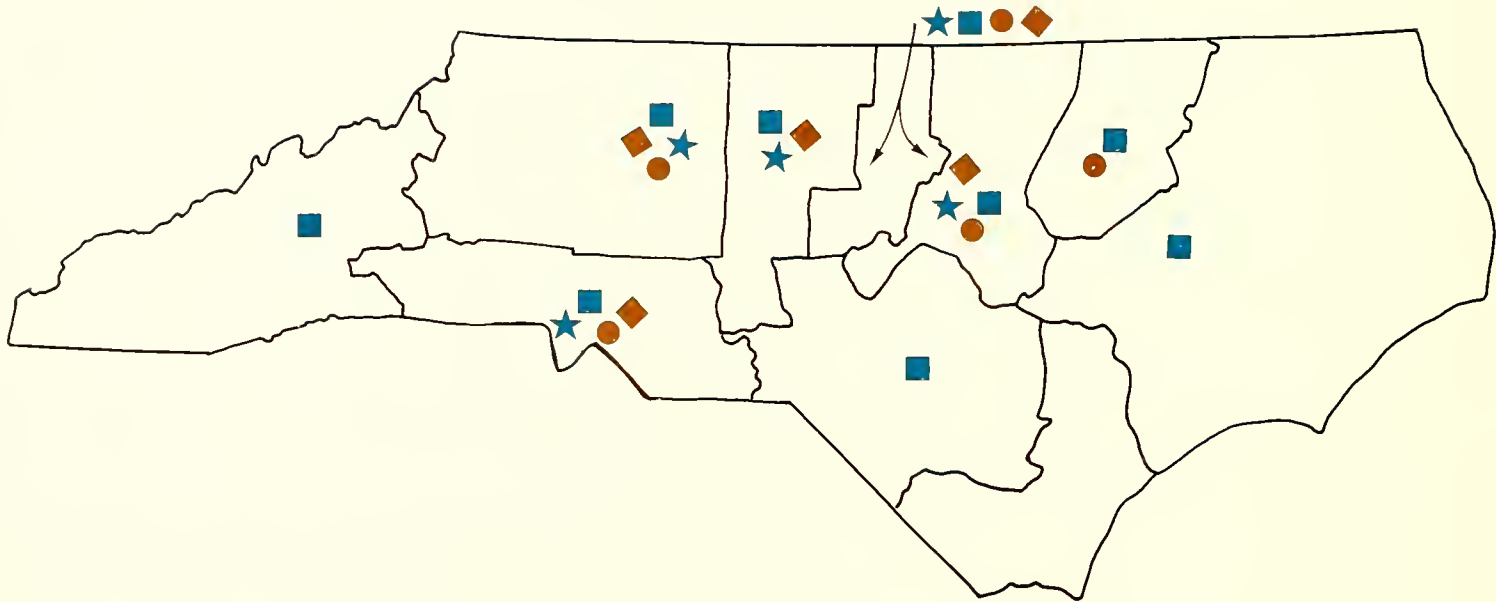
have been established at the Northwest AHEC under the leadership of the Bowman Gray School of Medicine. The number of family practice residents has also been expanded at programs at Duke, UNC/Chapel Hill, and the Greensboro AHEC, each of which was established before the start of the AHEC Program. The AHEC Program has also supported the expansion of residency programs in internal medicine, pediatrics, and obstetrics-gynecology where these programs already existed in 1974.

In addition to developing and supporting primary care residency positions, in 1977-1978 the AHEC Program was involved with about 765 months of residency rotations from the university medical centers to AHEC settings.

The Changing Character of Primary Care Residences in North Carolina 1973-1981

| | 1973-74 | | 1980-81 | | New Positions | |
|-----------------------|-------------|---------|-------------|---------|---------------|----------------|
| | # Positions | Percent | # Positions | Percent | Number | Percent Change |
| Family Practice | 30 | 8 | 210 | 32 | 180 | +600 |
| Internal Medicine | 194 | 53 | 262 | 39 | 68 | +35 |
| Pediatrics | 77 | 21 | 107 | 16 | 30 | +39 |
| Obstetrics-Gynecology | 67 | 18 | 89 | 13 | 22 | +33 |
| TOTAL | 368 | 100 | 668 | 100 | 300 | +82 |

Location of Primary Care Residency Training Supported in Part by the North Carolina AHEC Program



★ Pediatrics
■ Family Practice

● Obstetrics-Gynecology
◆ General Internal Medicine

OTHER EDUCATIONAL PROGRAMS

The AHEC Program has supported several educational programs which deserve notice since they illustrate an effective response to the special educational needs of students and practicing health personnel.

Family Nurse Practitioner Program

The need for additional health care providers and for more accessible primary care services led to the development of Family Nurse Practitioner (FNP) Programs in North Carolina. The AHEC network has helped facilitate, develop, and finance FNP training which was initially developed at the UNC-CH Schools of Nursing, Medicine, and Public Health. In 1975, additional FNP Programs were started by the East Carolina University School of Nursing in Greenville, in association with the Area L and Eastern AHECs, and by the Mountain AHEC in Asheville, in association with the Western Carolina School of Nursing. The three FNP Programs in North

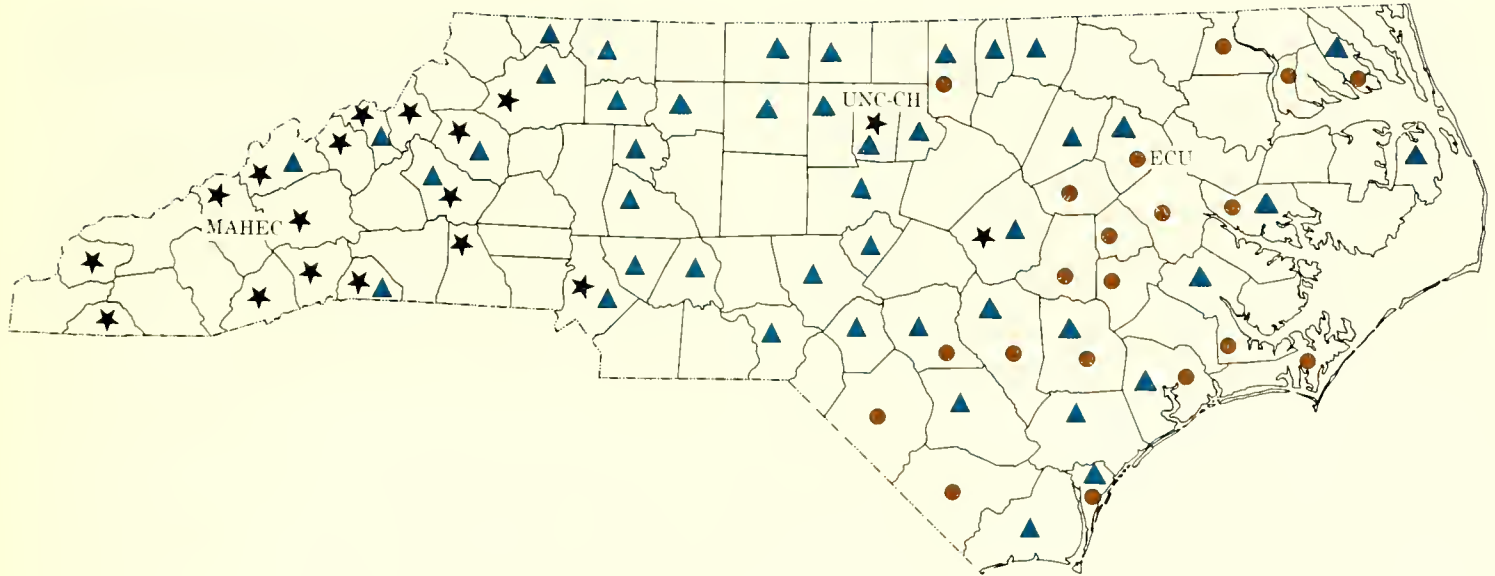
Carolina are coordinated on a statewide level to assure uniform quality training. All practicing FNPs are under the supervision of a community physician and are approved for practice by the N.C. Board of Medical Examiners and the N.C. Board of Nursing.

The Duke University Medical Center and the Bowman Gray School of Medicine both have physician extender training Programs which predate the N.C. AHEC Program. The AHEC Program has provided some financial support to assist both programs in conducting additional community based training for their students.

AHEC Based Off-Campus Rotations
for Physician Extender Programs
July 1, 1977—June 30, 1978

| | Number of Student Months* |
|------------------------------------|------------------------------|
| Family Nurse Practitioners | 313.6 |
| Physician Associates (Duke) | 100.0 |
| Physician Assistants (Bowman Gray) | 363.8 |
| TOTAL | <hr/> 777.4 |

Family Nurse Practitioner Practice Sites



- ★ Training site in Asheville: FNP Program under the auspices of the UNC-CH School of Nursing.
- ▲ Training site in Chapel Hill: FNP Program under the auspices of the UNC-CH Schools of Nursing, Medicine, and Public Health
- Training site in Greenville: FNP Program under the auspices of the ECU School of Nursing

Off-Campus Master's Program in Health Administration

The School of Public Health at UNC-CH has developed an off-campus master's degree program in Health Administration. The three year program, supported by AHEC, was designed particularly for the professional currently employed in administrative and health related positions. The program has provided a means for the advanced education of persons who could not become full-time on-campus students for an

extended period because of job responsibilities, family obligations, and community commitments

The response to the recently completed program in Asheville, supported by AHEC, was positive. As a consequence, the AHEC Program has cooperated in the development of a similar program in Fayetteville and is now funding an additional program in Greenville.

Training Health Professionals in Nutrition Education

The N.C. AHEC Program now has a Nutrition Coordinator who is working with health professionals across the State and the faculty and residents in four Family Practice Residency Programs (based in Asheville, Greensboro, Charlotte, and Chapel Hill) to develop educational approaches which emphasize nutrition, preventive health care, and individual responsibility.

Following a series of assessment visits, programs have been instituted to

- develop the ability of family practice residents to promote adequate nutritional

status as a part of health care delivery to families;

- develop and implement standards and procedures for delivering nutrition care to all Family Practice Center patients in an efficient and effective way;
- provide educational materials and nutrition information to health professionals which can be used in effective nutrition education program which will promote positive changes in food behavior.

Minority Student Affairs Programs

Efforts to improve the preparation, recruitment, and training of minority and disadvantaged students for health professions are a part of the activities currently being conducted by the N.C. AHEC Program. These activities include:

- A pilot minority health careers fellowship program, scheduled for one AHEC during the summer of 1979, which will expose students to specific health care settings and acquaint them with the basic requirements for entry into the health field.
- Continuing support for the Medical Education Development Program: two month educational experience, for admitted dental and medical students and prospective candidates, which includes a core curriculum of beginning medical/dental studies, work to strengthen general learning skills, elective seminars, and pre-professional counselling.
- Systematically informing minority students of primary care residency opportunities in North Carolina by (1) scheduling clinical rotations to N.C. AHECs for medical students from North Carolina who attend the Meherry Medical College in Nashville, Tennessee; (2) providing special seminars on residency programs in N.C. in association with the Student National Medical Association; and (3) direct mail.
- Actively recruiting graduates of N.C. medical schools, who have been in residency training elsewhere in the U.S., for practice opportunities in the State.

Biomedical Interdisciplinary Curriculum Project (BICP)

The Fayetteville AHEC, Duke Medical Center, and the N.C. Department of Public Instruction are currently sponsoring an experimental educational experience in four North Carolina high schools. The Biomedical Interdisciplinary Curriculum Project (BICP) is a two year curriculum for selected eleventh and twelfth grade students designed to acquaint them with a

variety of health careers in the health field.

In addition to the regular classroom curriculum, BICP offers a five week community practicum which allows students to work with local health care practitioners and to apply skills acquired in the classroom and laboratory to actual health care situations.

CONTINUING EDUCATION AND TECHNICAL ASSISTANCE

Each of the nine AHECs is conducting continuing education programs and providing technical assistance to all health professionals and support personnel in their service area.

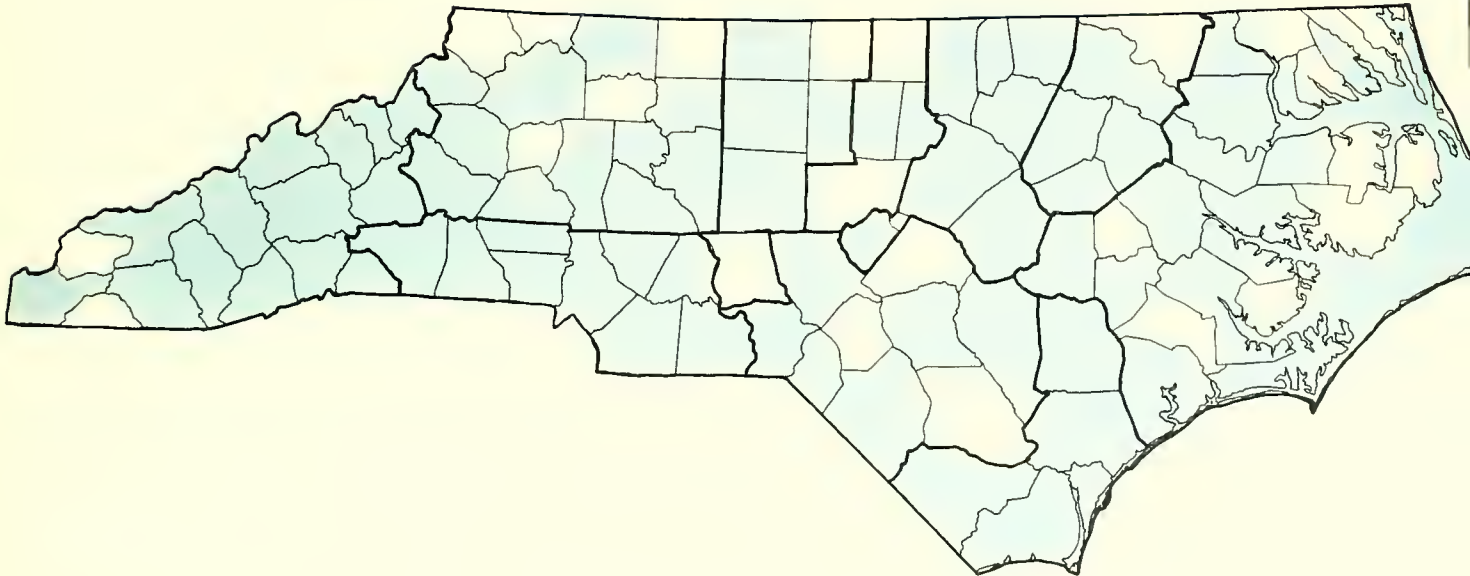
One particularly important form of continuing education has resulted from the development of consultation clinics whereby specialists from the medical schools have direct contact with local physicians around their own patient problems. In 1977-1978, 1,669 specialty consultation clinics were conducted in 30 towns across the State.

In addition, the AHEC Program has developed a statewide network of learning resource centers. The Centers provide library and learning resource services to the smaller hospitals in each of the nine AHEC regions. The AHECs have developed a computerized inventory of health education materials held throughout the State which now allows the sharing of resources, avoiding duplication and unnecessary expense. The AHECs have also placed standardized television equipment in most of the community hospitals in their regions. Videotapes can now be used in self-directed learning programs by personnel throughout each AHEC region to supplement the more formally organized continuing education programs. During 1977-1978, there were 12,350 reference searches and 26,647 exchanges of print and non-print materials for faculty, practitioners, and students in the AHECs.

Attendance in 3,325 Continuing Education Programs Conducted By AHECs in 1977-78

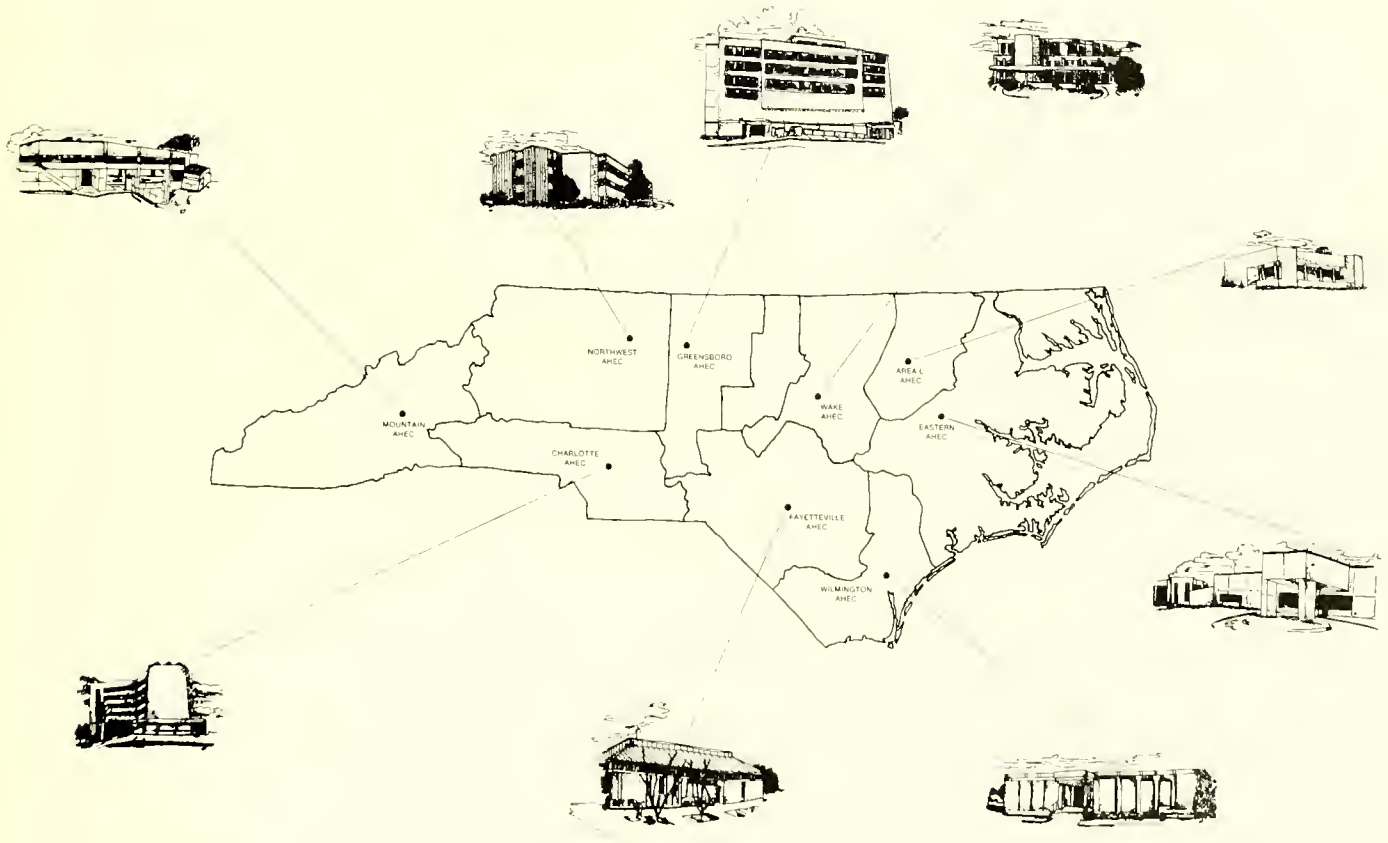
| Discipline | Attendance |
|---------------|------------|
| Allied Health | 16,625 |
| Dentistry | 685 |
| Medicine | 28,891 |
| Nursing | 21,546 |
| Pharmacy | 3,481 |
| Public Health | 2,590 |
| Other | 5,642 |
| TOTAL | 79,460 |

Location of Continuing Education Programs
for all Health Professions (1977-1978)



CAPITAL PROJECTS

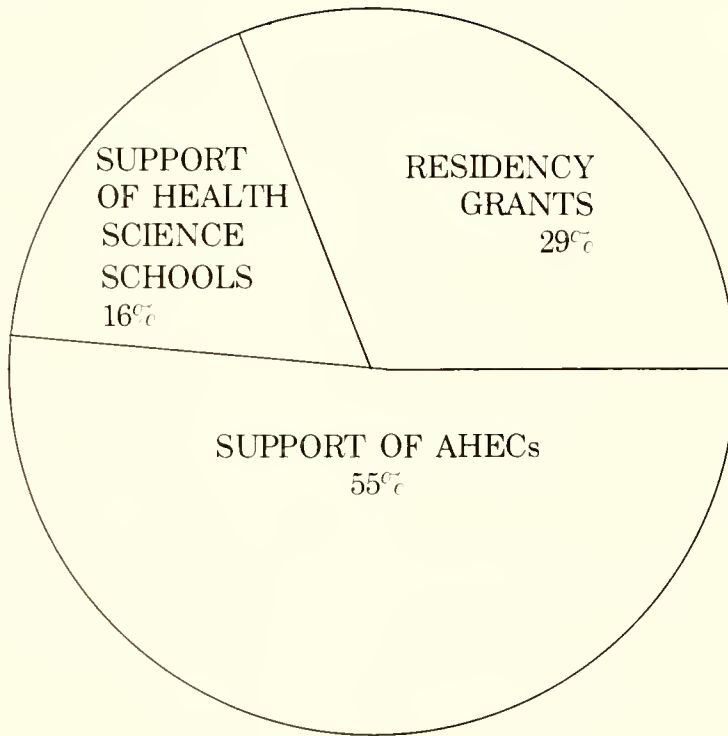
In 1974, the North Carolina General Assembly appropriated \$23,500,000 for the renovation or construction of physical facilities which would expand the capability of community hospitals to provide clinical education and training programs. The general categories of educational facilities authorized and constructed included: clinical areas, clinical support areas; generalized educational areas; library/learning centers; administrative and faculty offices; lounge, locker, and on-call facilities; and family practice centers.



| AHEC | PROJECT | COMPLETION DATE |
|------------|--|---|
| Area L | Edgecombe General Hospital Halifax Memorial Hospital Nash General Hospital Wilson Memorial Hospital | November, 1976 November, 1976 October, 1976 June, 1976 |
| Northwest | Catawba Memorial Hospital Forsyth Memorial Hospital Rowan Memorial Hospital Watauga County Hospital N. C. Baptist Hospital Family Practice Center | October, 1977 March, 1978 March, 1977 June, 1979 February, 1979 |
| Wake | Wake County Medical Center | April, 1978 |
| Wilmington | New Hanover Memorial Hospital | May, 1979 |
| Greensboro | Moses H. Cone Memorial Hospital Family Practice Center | February, 1978 |
| Mountain | Memorial Mission Hospital St. Joseph's Hospital Family Practice Center Educational Building | June, 1976 December, 1977 |

| AHEC | PROJECT | COMPLETION DATE |
|--------------|---|---|
| Charlotte | Charlotte Memorial Hospital | January, 1977 |
| Fayetteville | Family Practice Center Clinic Education Building Administrative Building | March, 1977 March, 1977 March, 1977 |
| Eastern | Albemarle Hospital Beaufort County Hospital Bertie County Memorial Hospital Carteret General Hospital Chowan Hospital, Inc. Craven County Hospital Lenoir Memorial Hospital, Inc. Onslow Memorial Hospital Pitt County Memorial Hospital Family Practice Center Pungo District Hospital Roanoke-Chowan Hospital Sealevel Hospital Tri-County Health Services Tyrrell County Hospital, Inc. Washington County Hospital Wayne Memorial Hospital | March, 1977 April, 1977 September, 1977 April, 1979 December, 1977 March, 1977 June, 1977 August, 1977 November, 1977 December, 1975 January, 1978 July, 1979 October, 1978 December, 1977 November, 1976 February, 1977 |

ALLOCATION OF LOCAL, STATE, AND FEDERAL* FUNDS 1977-1978



| | |
|--------------------------------------|---------------------|
| Support of AHECs | \$ 8,243,743 |
| Residency Grants | \$ 4,380,000 |
| Support of Health Science Schools | \$ 2,279,142 |
| TOTAL | \$14,902,885 |

*Bureau of Health Manpower,
Department of Health,
Education, and Welfare,
Contract #232-79-0007.



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North Carolina Area Health
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Progress report

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